

Study Guide Transcript



Autumn/Winter 2026

*This study guide transcript has been provided to support learners in following the **Way2Learn Plug-In Solar** course.*

*While the guide serves as a useful resource, we highly recommend that learners watch the course episodes on the **Way2Learn channel** or via the **Video-on-Demand** service to gain a full understanding before completing the answer book.*

*For your convenience, episode times are listed on **page 4 of the answer book**, within the **Way2Learn prospectus** in your library, and in the **quick-glance guide**.*

Episode 1: Plug-In Solar and the Law: What Changed in August 2026



Introduction

The technology was never the problem. For years, households across Europe have been plugging small solar panels into an ordinary wall socket and watching their electricity bills drop. In Germany, well over a million homes do it. The panels sit on a balcony rail, a garden fence, or a south-facing wall. There is no scaffolding and no roof work.

Britain could not do this. Not because the equipment was dangerous, but because of a plug.

What Plug-In Solar is

A plug-in solar kit is small and simple. One or two solar panels. A small box called a microinverter. A cable. An ordinary three-pin plug.

Sunlight hits the panel. The panel makes electricity. The microinverter converts that electricity into the type your home uses. The plug feeds it into your sockets. Your fridge, your router and your lights use that power first, before they take anything from the grid.

It does not take you off grid. It does not power your home in a blackout. What it does is reduce the amount of electricity you buy during daylight hours.

It needs no scaffolding, no roof, and no planning permission. And because it is not built into the building, it can come down off the wall and move with you.

Risk Assessments

British plugs must meet a standard called BS 1363. That standard says a plug is for taking power out of a socket. It does not permit a plug to be used to push power in. Sockets are outlets, not inlets.

That single restriction blocked the entire product category. A perfectly safe solar kit could not be sold or legally used in the UK, because of one line in a plug standard.

Rewriting BS 1363 would have taken years. So the government went around it instead.

How the Law Changed

On 24 March 2026, the Department for Energy Security and Net Zero announced that plug-in solar would be in British shops within months.

A public consultation opened on 16 June 2026 and closed on 30 June. It was short two weeks. It drew 466 responses from electricians, engineers, manufacturers, retailers, the fire service, housing associations, academics and members of the public.

The support was strong. Eighty-eight per cent agreed with allowing plug-in solar to connect through a standard plug. Eighty-five to eighty-six per cent backed the proposed product safety specification. Seventy-eight per cent backed the timetable.

On 16 July 2026 the government published its response, along with the final Plug-in Solar Device Interim Product Specification, version 2.0. The same day, the new regulations were signed. They were laid before Parliament on 17 July.

Introduction to Plug-In Solar 2026

The regulations are Statutory Instrument 2026 number 848: The Plugs and Sockets etc. (Safety) Regulations 1994 and Electricity Safety, Quality and Continuity Regulations 2002 (Amendment) Regulations 2026.

They came into force on 27 August 2026. That is the date plug-in solar became legal in Great Britain.

What the New Law means

It creates a new legal category: the plug-in microgenerator.

It opens a narrow route for an approved body to certify a British three-pin plug for use with a solar device even though that plug does not meet BS 1363 in the one respect that forbids generation. In every other respect it is a normal, fully tested British plug.

It also amends the Electricity Safety, Quality and Continuity Regulations 2002, so that a plug-in solar device is measured against the government's Interim Product Specification.

The route is deliberately narrow. It covers solar only. It does not cover plug-in batteries, hybrid solar-and-battery products, or any other kind of plug-in generation. Government was explicit about this, because many people asked for batteries to be included and the answer was no.

The three numbers that define a legal kit

800. The maximum output is 800 volt-amps usually written as 800 watts. That is roughly the draw of a small heater, or a kettle running at half power.

2,000. A kit may have up to 2,000 watts of solar panels, even though it can only ever push 800 out. Fitting more panels than the inverter can pass is normal practice. It means you still get useful output on a dull morning or a winter afternoon.

Zero. No batteries. Battery-integrated products are outside this framework entirely.

There is a fourth rule that matters just as much. Only complete, certified kits are legal - panel, inverter, cables, plug and mounting system, tested and approved together as one product. You cannot buy panels from one place, an inverter from another, and assemble your own. A compliant product must carry a declaration that it meets the specification, and must be listed on the Energy Networks Association G98 Type Test Register.

Where this leaves Britain

Plug-in solar is already ordinary in Germany, Spain and the Netherlands. Britain was the outlier. As of 27 August 2026, it is not.

This information is correct as of August 2026. The rules are still developing, and some parts of the framework are expected to change.

Episode 2: How a Kit Works and the Rules That Apply



What is in the box

A legal plug-in solar kit is a complete product. One or two panels, a microinverter, factory-made cables and connectors, a plug, and a mounting system. All of it tested and certified together as a single unit.

This matters more than it sounds. You cannot legally buy a panel from one supplier, an inverter from another, and build your own. The certification covers the whole kit or it covers nothing. A compliant product carries a declaration of compliance and appears on the Energy Networks Association G98 Type Test Register.

How the power flows

Sunlight hits the panel. The panel produces direct current, the same kind of electricity a battery produces. The microinverter converts it to alternating current at 230 volts, which is what a British home runs on. The plug feeds that into the socket, and from there into the ring circuit that supplies the rest of the room.

Electricity takes the nearest source. If your fridge is drawing 100 watts and your panels are making 100 watts, that fridge runs on sunlight and your meter records nothing. If you are generating 300 watts and the house is using 300 watts, you are buying nothing from the grid in that moment.

Anything you generate but do not use flows back out to the grid. You are not paid for it. More on that in Part Three.

Why it is safe: Anti-Islanding

The first safety feature is called anti-islanding, and it protects the people who work on the electricity network.

If the grid goes down, whether from a fault or because an engineer has switched off a section to work on it, the device must detect that and shut itself off within milliseconds. Without this, a solar device could keep pushing power into a cable that an engineer believes is dead.

The side effect is that plug-in solar will not power your home during a blackout. That is not a fault. That is the safety feature doing its job.

Why it is safe: Live Pin Protection

The second feature deals with the obvious worry. If the device is generating and someone pulls the plug out of the wall, are the pins live?

Under the specification, voltage on the plug pins must fall below 34 volts within 100 milliseconds of disconnection. A tenth of a second. There is also a limit on residual direct current leakage of 5 milliamps, which protects the trip switches in older consumer units from being desensitised.

An independent electrical safety study commissioned by government tested representative plug-in solar devices against UK domestic wiring, including ring circuits, across a range of fault conditions. It found stable behaviour, protective devices operating correctly, and no evidence of sustained unsafe energisation or unacceptable heating. It also found that product quality varied between manufacturers, which is precisely why a UK product specification was judged necessary.

The rules people get wrong

No extension leads. No multi-way adaptors. No plugging one kit into another. The device goes directly into a fixed wall socket, and nothing else.

There is a limit on how many devices one home can have. The product specification permits one device per final ring circuit. However, the grid connection rule that governs small generation, known as G98, still allows only one device per household. Until G98 is amended, one per home is the rule that applies.

There are restrictions on where kits may be mounted, including fire safety requirements covering the materials behind the panel and limits relating to higher-risk buildings such as tall blocks of flats. Mounting must be structurally sound. A panel is a large flat object in the wind, and it must not become a hazard to anyone below.

If a property has old wiring, or a fuse box with rewirable fuses rather than modern trip switches, it should be checked by a qualified electrician before anything is plugged in.

The Paperwork

Two things need doing, and neither is difficult.

First, notify the Distribution Network Operator. This is the company that owns the cables in the street, not the company that sends the bill. The process is called G98 notification. It is free, it is a connect-and-notify form rather than an application, and it exists so the network knows what generation is out there. It is not optional.

Second, get permission. Anyone renting must ask their landlord. Anyone in a leasehold flat must check the lease and ask the freeholder or managing agent. Anyone in social housing must ask the housing provider. Attaching something to the outside of a building you do not own generally requires consent. It is also worth telling the home insurer.

By fostering strong teamwork and workplace communication, warehouses can run more efficiently and safely.

What it takes to set up

Government modelling assumes about one hour to set a kit up, and expects most households will not need an electrician at all.

Not everyone, though. Somewhere between fifteen and twenty-five per cent of buyers are expected to want professional help with mounting, particularly on brickwork or at height. Around fifteen per cent may need minor electrical work, most commonly fitting a proper outdoor socket. Up to five per cent may need more substantial work, such as changes at the consumer unit.

This information is correct as of August 2026.

Episode 3: What it Costs and What It Saves



Two identical kits, two different answers

Two households buy the same kit on the same day. One saves about 110 pounds a year. The other saves about 70 pounds. The hardware is identical. The difference is which way the panels point and when the household is at home.

That gap is the most important thing to understand about plug-in solar, and it is the thing advertising tends to leave out.

What a Kit Costs

An 800 watt kit in the UK costs roughly 400 to 600 pounds. Expressed per unit of capacity, that is around 500 to 750 pounds per kilowatt.

Set that against conventional rooftop solar. The median cost of a small-scale domestic rooftop installation in Great Britain in 2025 and 2026 was about 1,595 pounds per kilowatt. Plug-in solar is roughly a third of the price to get through the door, and there is no installation bill on top.

The Government's Two Scenarios

Both scenarios assume the same things. An average Great Britain household using 3,323 kilowatt hours of electricity a year. Someone at home during the day. No battery. No payment for exported electricity. Prices taken from the energy price cap for July to September 2026.

Scenario A. Panels tilted at thirty degrees, facing south. This is the arrangement that generates the most. The household uses 62 per cent of what it generates, amounting to 428 kilowatt hours a year, worth roughly 110 pounds.

Scenario B. Panels mounted vertically on a balcony rail, facing east and west. This generates less. The household uses 72 per cent of what it generates, amounting to 272 kilowatt hours a year, worth roughly 70 pounds.

The Part that Surprises People

Look again at those percentages. Scenario A generates more electricity but uses a smaller share of it. Scenario B generates less but uses more of what it makes.

The reason is timing. A south-facing panel tilted to catch the sun produces a large spike around the middle of the day, and most homes cannot absorb a spike that size. The surplus flows out to the grid for nothing. Vertical panels facing east and west produce a flatter curve, with output in the morning and again in the late afternoon, which is closer to when people actually use electricity.

This is what is meant by self-consumption. Solar only saves money the moment you use it. Anything you generate and do not use is given away.

It follows that the cheapest way to improve the return is to move electricity use into daylight hours. Washing machine at midday rather than midnight. Dishwasher after lunch. Anything on a timer, timed for the afternoon. Constant background loads like the fridge, freezer and broadband router are already working in your favour.

Working out payback

Payback is simple division. Take the cost of the kit and divide it by the annual saving.

A 500-pound kit saving 110 pounds a year pays for itself in a little over four and a half years. The same kit saving 70 pounds a year takes about seven years. A 600-pound kit at the lower saving takes longer still.

Solar panels typically keep working for well over two decades, so a kit that pays for itself in five to eight years spends the rest of its life saving money. But the honest answer to the question is that it depends on the flat, the direction, the shading and the household.

There is no payment for what you export

Households with professionally installed rooftop solar can be paid for surplus electricity under the Smart Export Guarantee. That scheme requires certified installation under the Microgeneration Certification Scheme, which a self-installed plug-in kit does not have.

So, assume you are paid nothing for what you export. All the figures above already assume that. If a simplified route into the export scheme appears later, the maths improves.

Why this exists at all

The price of solar modules in Europe fell by about 97 per cent between January 2010 and January 2024. A product category that would have been absurd fifteen years ago is now a supermarket item. That price collapse is the whole reason plug-in solar is a serious proposition.

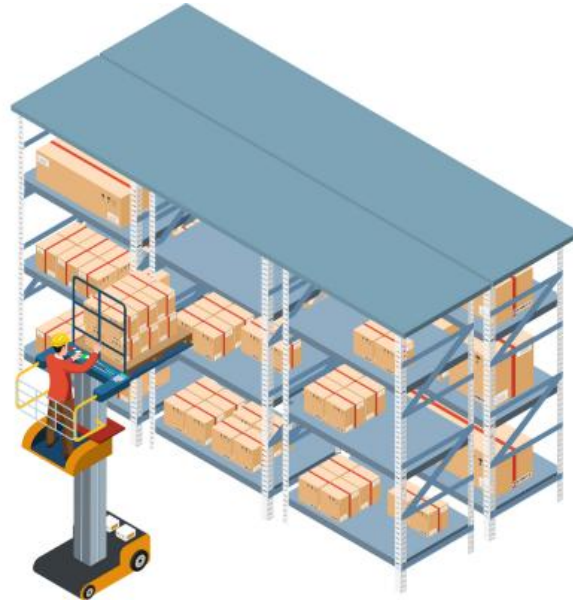
Government has also earmarked 25 million pounds to pilot support for lower-income households, working with local authorities to reach places where an upfront 500 pounds is the obstacle.

An Honest Summary

Plug-in solar is not a windfall. Seventy to a hundred and ten pounds a year is a modest saving. What it is, is the cheapest and least complicated way into generating your own electricity that has ever existed in this country, and it is available to people who could never consider a roof installation.

This information is correct as of August 2026. Energy prices change, and savings figures move with them.

Episode 4: A New Industry and the Work It Creates



What Happens When a Country says yes?

Germany is the market everyone watching plug-in solar looks at first.

At the end of 2023, registered plug-in solar systems were installed in about 0.9 per cent of German households. By the end of 2025 that figure had reached around 3 per cent, roughly 1.2 million registered devices. The registered market tripled in two years.

The true figure is higher, because not everyone registers. The German environment agency estimated close to 3 million devices in place by the end of 2024. Together they generated about 1.7 terawatt hours of electricity in 2024, of which 1.1 was used in the home and 0.6 exported. That is around 0.4 per cent of everything Germany generated that year, from equipment people hung on their own balconies.

How Germany got there

Not through one law, but a sequence of them.

From January 2023, VAT on the equipment was reduced to zero. In May 2024, a package of reforms known as Solarpaket I raised the output limit from 600 to 800 watts and

removed the need to register with the local grid operator. In October 2024, tenancy and flat-ownership law changed, making the installation of a plug-in solar device a privileged modification, which stripped landlords and residents' associations of most grounds to refuse. In December 2025 the first dedicated product standard was published, and in March 2026 grid connection was simplified further.

Each change removed one obstacle. Britain has compressed a version of that sequence into about five months.

Who this Technology is for in Britain

Flats. Rented homes. Small yards and shared gardens. Terraced houses with no suitable roof.

Anyone who has looked at rooftop solar, worked out that it costs thousands and requires owning the roof, and concluded that it was not for them.

This is the first time renters in Britain have had a legitimate, affordable route into generating their own electricity. And because a plug-in kit is not built into the building, it comes off the wall and moves to the next home.



In 2025 this market did not exist in the United Kingdom. From August 2026 it does. Building it from nothing requires people.

Importers and distributors, to bring certified product into the country. Certification and compliance staff, to get kits onto the G98 Type Test Register and keep non-compliant product off the market. Warehousing and logistics, because these are bulky items sold in volume.

Retail and customer service staff who can answer questions about a product most shoppers have never seen. Installers and fitters, because between fifteen and twenty-five per cent of buyers will want help mounting. And qualified electricians, for the homes needing an outdoor socket or work at the consumer unit.

Retailers including Lidl, Iceland and Amazon, and manufacturers including EcoFlow, have been working with government to bring kits to British shelves. Behind every supermarket aisle is a supply chain, and every link in it is a job.

Solar and the Prison Estate

This is not unfamiliar ground inside prisons. HMP Wayland in Norfolk became the first prison in England and Wales to install ground-mounted solar panels, with more than 700 of them, as part of a wider programme covering around 16,000 panels across 19 prisons. Prisoners were involved in the installation work and gained experience from it.

At HMP Millsike, the first all-electric prison in the country, a construction training programme run with the contractor Kier trained 40 prison leavers, of whom 29 went into employment. Forty-four release on temporary licence placements were provided, and 85 per cent of participants were in work six weeks after release.

Employment Routes

There are several, and they suit different people.

The electrical route is the deepest and the best paid. Level 2 and Level 3 qualifications in electrical installation, followed by an NVQ and assessment, lead to registration with a competent person scheme. Installers working on conventional rooftop solar generally work towards Microgeneration Certification Scheme accreditation.

Shorter routes exist too. Skills Bootcamps in solar photovoltaic installation run for a matter of weeks. Warehousing, logistics and driving roles sit behind every product that reaches a shop. Retail and customer support roles need product knowledge more than qualifications, and product knowledge is exactly what this briefing provides.

Anyone interested should speak to the Head of Learning and Skills in their establishment, and to the employment lead who works with the New Futures Network, the part of the prison service that connects prisons with employers.

The Bigger Picture

The United Kingdom has a target of 45 to 47 gigawatts of solar capacity by 2030, up from roughly 22 gigawatts today. Plug-in solar is a small part of that number, but it is the part ordinary households can take part in directly.

This is a market on day one. Understanding it early is worth something.

This information is correct as of August 2026.

Episode 5: Solar, The Green Economy and What It Has Actually Changed in Britain



Introduction

Claims are cheap. Numbers are not.

Everyone says clean energy is good for the environment. That is easy to say and easy to ignore. What follows are the measured figures for what has actually happened to electricity in Britain, including the parts that are less flattering.

Britain Stopped Burning Coal

For nearly one hundred and fifty years, coal was the foundation of British electricity. On 30 September 2024, Ratcliffe-on-Soar power station closed, and Britain became the first major economy in the world to stop generating electricity from coal altogether.

In 2012, coal supplied around thirty-nine per cent of Britain's electricity. In 2025, it supplied none. That happened in thirteen years.

Where the Electricity comes from now

Renewables provided 52.1 per cent of the United Kingdom's electricity in 2025. That is the second year running above half, and a record. Fossil fuels, almost entirely gas, provided about 32 per cent.

In total, renewables generated 153 terawatt hours of electricity in 2025, beating the previous record of 144.5 terawatt hours set in 2024.

Wind does most of the heavy lifting, at about thirty per cent of all electricity. But solar set its own record. Solar supplied 6.9 per cent of Britain's electricity in 2025, a record 20 terawatt hours, up sharply from 5.1 per cent the year before. Wind and solar together now generate roughly ten times what they generated in 2015.

How much Solar Britain has Built

Solar photovoltaic capacity now stands at roughly 22 gigawatts. To put that in context, before the Feed-in Tariff launched in 2010, solar accounted for just one per cent of Britain's renewable generating capacity. By the end of 2025 it accounted for 33.6 per cent.

In 2025 alone, 2.5 gigawatts of solar capacity was added, the highest annual figure since 2015. That came from 269,000 separate new installations, the most ever recorded in a single calendar year. Britain passed two million solar installations in total during 2026.

Impact on Emissions

The useful measure here is carbon intensity: the grams of carbon dioxide released for every unit of electricity generated.

In 2012, British electricity carried roughly 500 grams of carbon dioxide per kilowatt hour. By 2021 that had fallen to 188 grams. In 2024 it reached a record low of 124 grams. Each

unit of electricity used in Britain today carries around a quarter of the emissions it carried a little over a decade ago.

Honesty matters here. In 2025 that figure rose slightly, to 126 grams. Decarbonisation of the grid stalled that year, mainly because nuclear output fell by twelve per cent as ageing plants went offline, which cancelled out much of the gain from new wind and solar. Progress is not a straight line.



The Objection Worth Taking Seriously

A fair challenge to any solar claim is this: making solar panels uses energy and produces emissions, particularly since most manufacturing happens in China. Does a panel ever really pay that back?

It does, and quickly. The Intergovernmental Panel on Climate Change puts the lifetime emissions of rooftop solar at around 41 grams of carbon dioxide equivalent per kilowatt hour, counting mining, manufacturing, transport, installation and disposal. The equivalent figure for gas generation is about 490 grams, and for coal about 820 grams. Rooftop solar is roughly twelve times cleaner than gas and twenty times cleaner than coal across its whole life.

The energy used to build a modern panel is typically repaid within one to three years of operation. Panels then keep working for twenty-five to thirty years. Everything after that early payback period is clean electricity that would otherwise have come from burning something.

What one Plug-in Solar Kit does

Be realistic about the scale. A plug-in solar kit in the government's better scenario displaces about 428 kilowatt hours of grid electricity a year. At current grid carbon intensity, that avoids roughly 54 kilograms of carbon dioxide annually. Over twenty years, around one tonne.

One tonne is not going to save the planet. One household is not the point.

Germany offers the comparison. Its plug-in solar devices generated about 1.7 terawatt hours in 2024, roughly 0.4 per cent of everything the country generated. That came entirely from equipment hung on balconies and fences by ordinary people, most of whom could never have installed a rooftop system. If a million British households did the same, the combined effect would be measured in hundreds of thousands of tonnes of carbon dioxide a year.

Cleaner Air and Less Imported Gas

Carbon dioxide is not the only thing that comes out of a chimney. Burning coal and gas also releases sulphur dioxide, nitrogen oxides and fine particulate matter, all of which damage human lungs. Ending coal generation removed a significant source of that pollution from British air.

There is an energy security argument too. Gas burned in British power stations is increasingly imported, and its price is set by global markets that respond to conflicts thousands of miles away. Sunlight falling on a British balcony has no price, no supplier and no shipping route.

Green Economy Stats

The environmental case and the economic case are the same case.

Research commissioned by the Energy and Climate Intelligence Unit, with analysis by CBI Economics, found that the United Kingdom's net zero economy now supports about 1.1 million jobs and generates around 105 billion pounds in gross value added.

Those jobs are unusually productive. Each full-time worker in the sector generates roughly 119,300 pounds of economic value, well above the national average. Wages follow: the average net zero job pays about 43,142 pounds, around eleven per cent above the national average of 39,039 pounds. Much of this sits in small firms, with over 22,000 businesses employing fewer than fifty people.

This is no longer a niche sector waiting for the future. It is a substantial part of the present economy, and it is short of skilled people.

What the numbers do not show

A course that only lists benefits is not teaching, it is advertising. Several real problems remain.

Solar generates when the sun shines, not when demand peaks, which is why storage and flexible demand matter so much. The electricity network in places cannot carry what is already being built, so wind and solar farms are sometimes paid to switch off. Solar manufacturing is heavily concentrated in China, which raises questions about supply chains and about the conditions under which panels are made. Recycling panels at end of life is an industry still being built. And there is genuine public disagreement about large solar farms on agricultural land, which is a question about how land should be used rather than about whether the technology works.

None of these cancel the progress. All of them are work still to be done and work still to be done means people are needed to do it.

The short version

Coal has gone. Renewables supply more than half of British electricity. Solar has gone from one per cent of renewable capacity to a third of it. Each unit of electricity is about a quarter as polluting as it was in 2012. Over a million people work in the sector.

Plug-in solar will not transform any of those numbers on its own. What it does is open the door to people who were locked out of it, which is a different kind of contribution and arguably a more interesting one.

This information is correct as of August 2026. Figures for carbon intensity vary depending on the method used to calculate them.

